

Subdivision Rules & Regulations Updates: Proposals & Discussion

Topics:

- Measure 30' minimum intersection rounding radius at pavement edge instead of edge of right of way
- Refine intersection separation rules

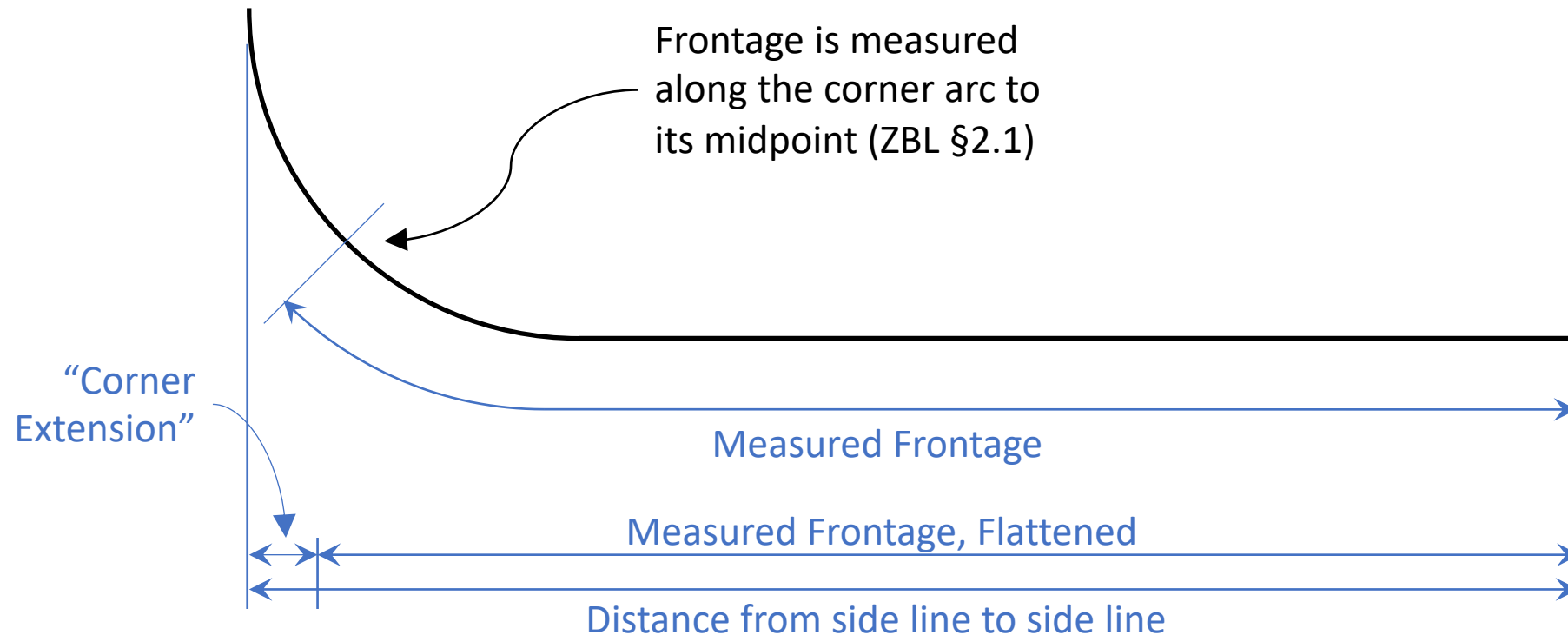
Minimum Rounding Radius Changed to 30' at Pavement Edge

4.1.3.5 The **edge of pavement** at street intersections shall be rounded or cut back to provide for a radius of not less than thirty feet (30'). **The edge of right of way at intersections shall be rounded or cut back to maintain the constant distance from the edge of pavement as specified by Section 4.1.3.7.**

Why? We currently require a minimum 30' radius at the edge of right of way, but a 30' radius at the edge of pavement is more or less always used, and is the visible boundary, so let's formalize it.

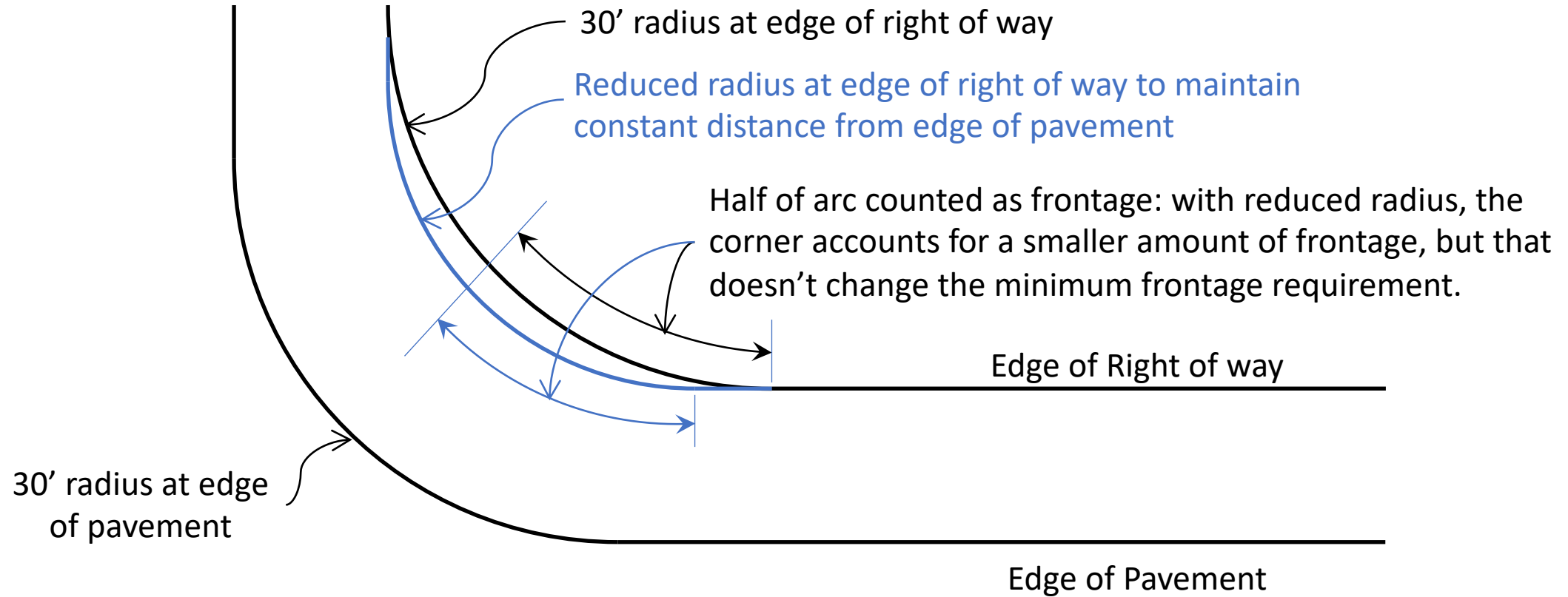
Question: What impact does this change have on lot frontage and spacing of intersections?

Measuring Frontage at a Corner



The minimum side-to-side measurement is greater than the minimum frontage. For the sake of discussion, let's call the difference the "corner extension" – its length depends upon the radius of the arc.

How Does Reduced Radius Affect Frontage?



How Much Difference Does It Make?

Reduction in radius at edge of right-of-way reduces the corner extension.

The table shows, for a 30' radius at the edge of pavement, what the radius would be at the edge of right of way, and what the corresponding corner extension would be.

Street Classification	Pavement Width	ROW Width	ROW Radius	Corner Extension	Difference
Current: 30' ROW radius			30'	6.4'	
Major	38'	60'	19'	4.1'	2.3'
Minor A	30' 4"	50'	20' 2"	4.3'	2.1'
Minor B	26'	50'	18'	3.9'	2.5'
Minor C	22'	50'	16'	3.4'	3'

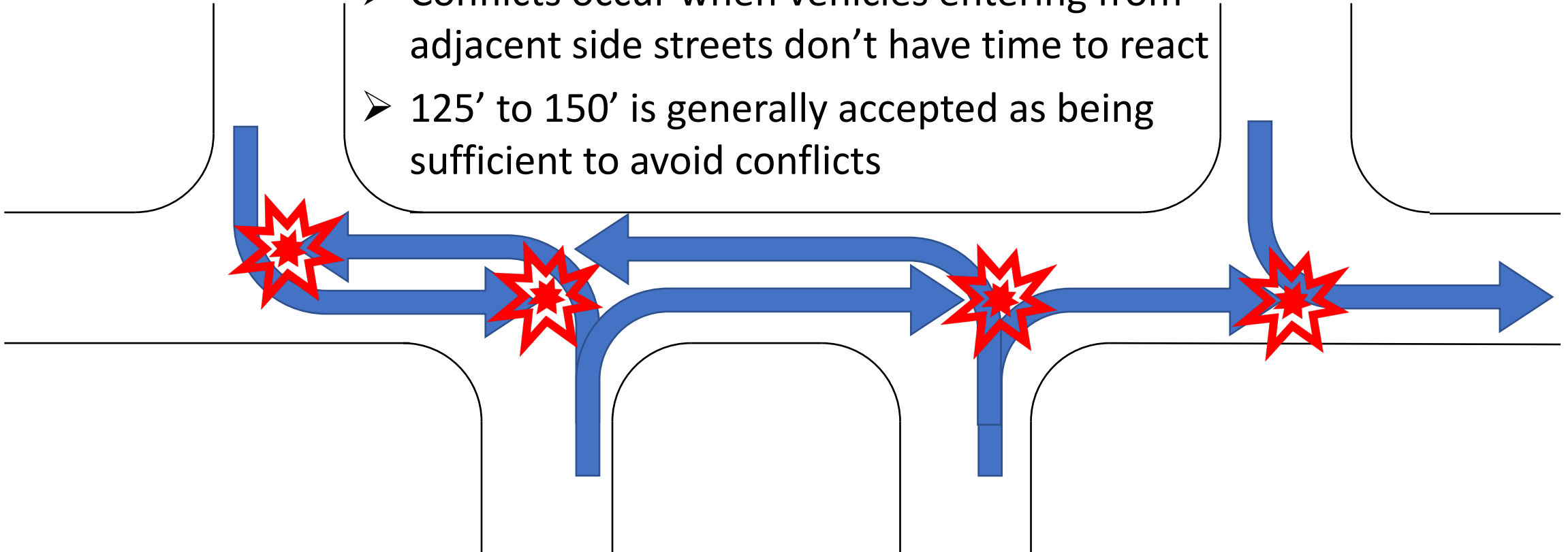
Reduced corner extension (2'-3' per corner) means that two intersections can be spaced 4'-6' closer together when the lots between them have exactly the minimum frontage.

Key Factors that Influence Intersection Separation Rules

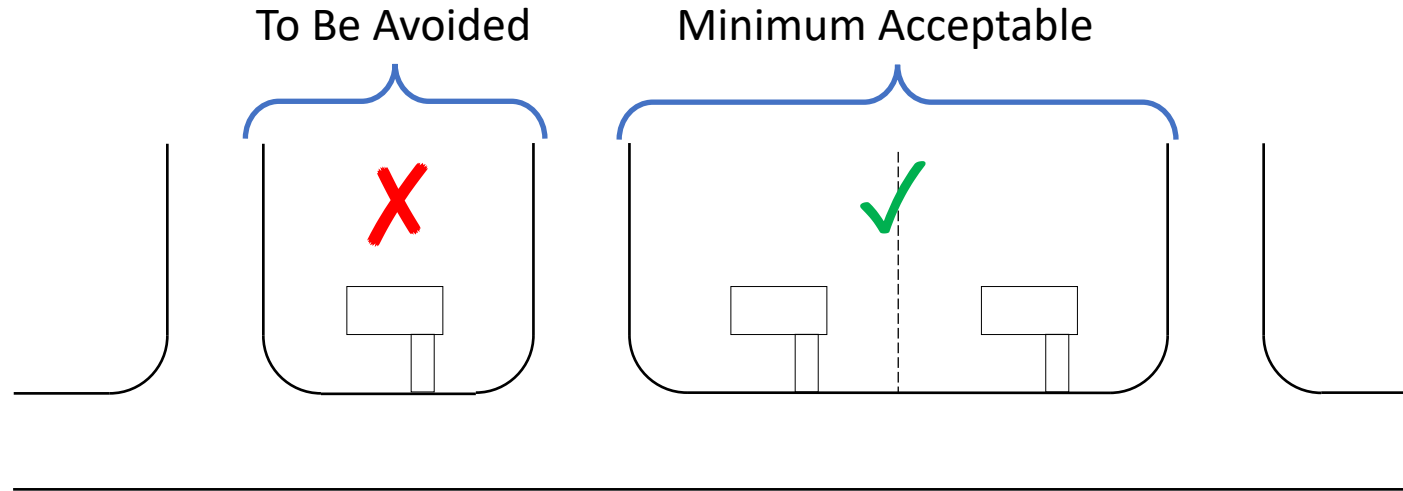
- Traffic conflicts between vehicles entering a street from two adjacent side streets
- Streets on three sides of a single lot
- Congestion at intersections on busy streets

Traffic Conflicts

- Conflicts occur when vehicles entering from adjacent side streets don't have time to react
- 125' to 150' is generally accepted as being sufficient to avoid conflicts



Streets on Three Sides of a Lot



- A lot may be adversely impacted by having streets on three sides
 - For example, a lot developed for residential or commercial use with frontage not much more than the minimum frontage for its zoning district can reasonably be assumed to be adversely impacted by having streets on both side lines
- So – intersection rights of way should be separated by at least twice the minimum lot frontage for the zone

Streets on Three Sides of a Lot: Details

- There is a minimum acceptable intersection separation
 - Where the minimum frontage is small, e.g., 100', twice the minimum frontage may be too short for comfort
 - Something like 250' or 300' is a minimum acceptable separation
 - The rule should be the greater of (1) twice the minimum frontage or (2) the minimum acceptable separation
- We won't require that there actually be two lots between streets
 - A single lot can have twice the minimum frontage between two streets, in which case it is unlikely to be adversely impacted by streets on three sides

Streets on Three Sides of a Lot: Exceptions

- There may be situations where a separation less than the prescribed minimum can be allowed by waiver of the rule
- When strict compliance is not feasible due to one or more constraints
 - Existing development or property lines
 - Topography, wetlands, or other unusual site conditions
- There must be no feasible alternative
- Board must find that there is no adverse impact on adjacent land or traffic safety
- Separation must be at least the minimum opposite-side offset in order to avoid traffic conflicts

Streets on Three Sides of a Developed Residential Lot are Generally Unacceptable



May Allow Reduced Separation Around Open Space



Congestion at Intersections

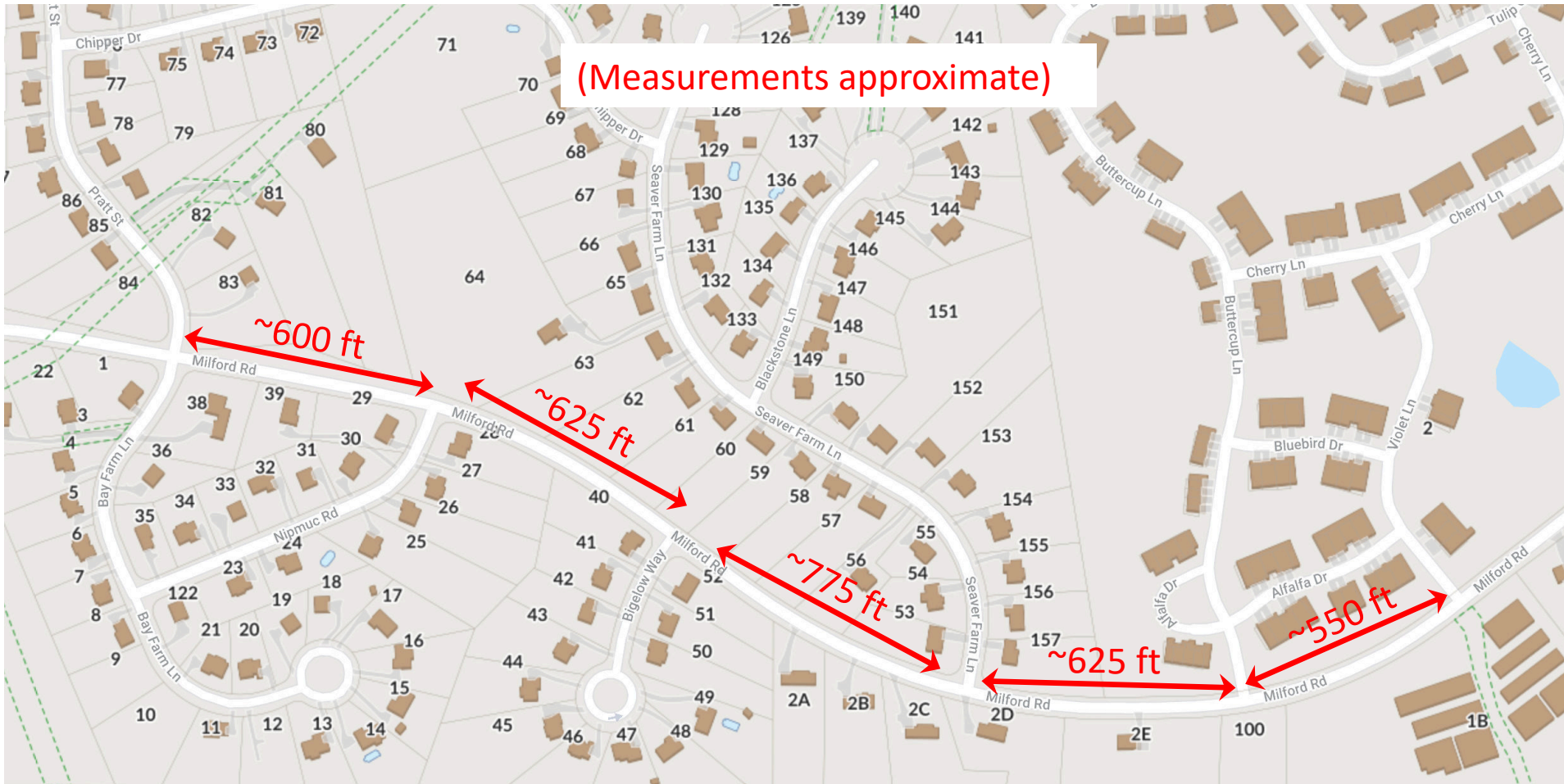
Congestion at intersections becomes a problem on busy streets

- Major street = 1,500 or more vehicles per day
- Higher traffic volume results in more congestion at intersections due to vehicles entering or leaving the street
- Congestion is compounded when intersections are closer together

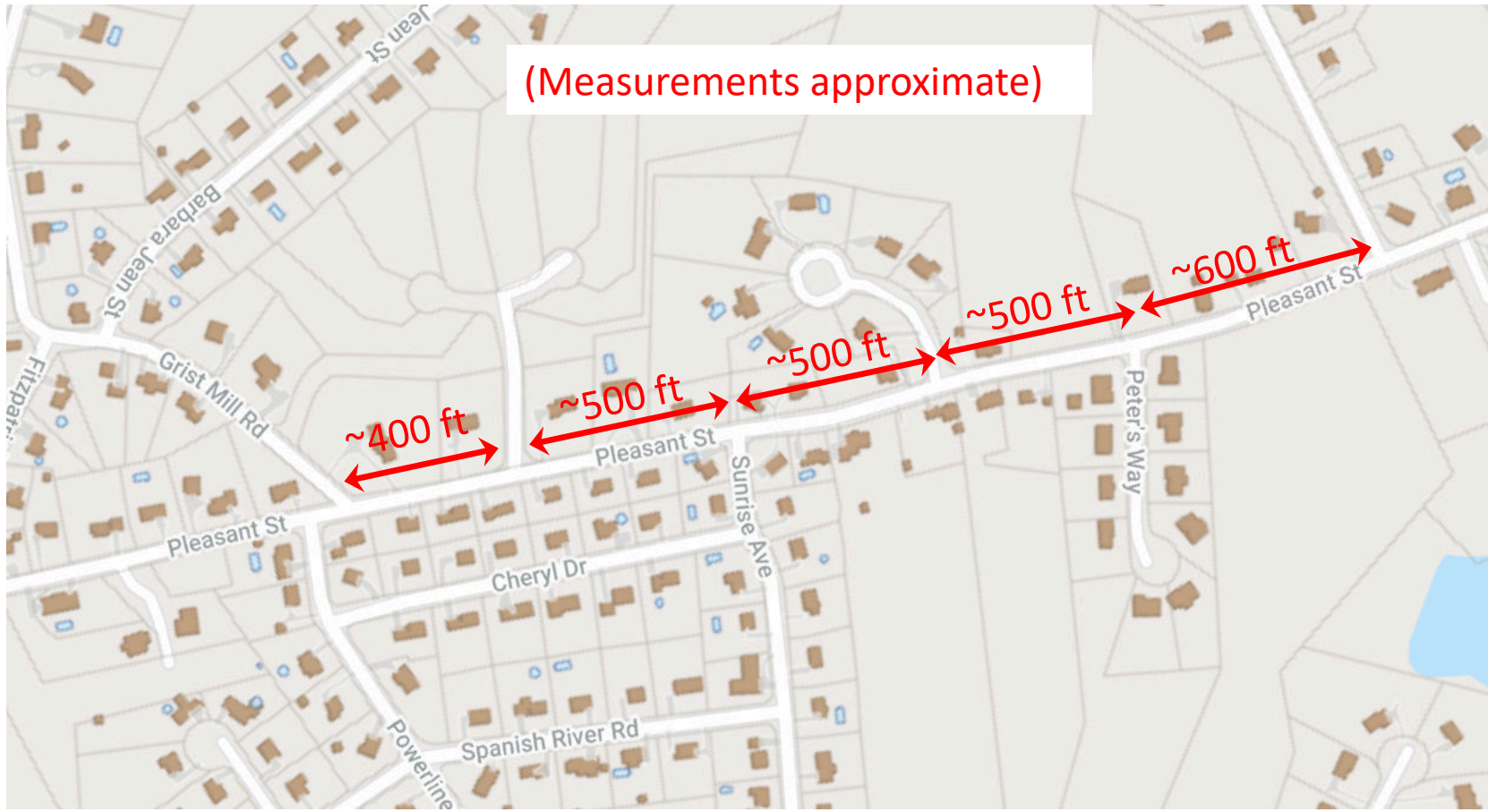
Limit congestion by requiring intersections on major streets, regardless of which side of the major street the side street is on, to be separated by a suitable minimum distance

“Suitable minimum distance” is very subjective; there seem to be no objective metrics – examples of various separations follow

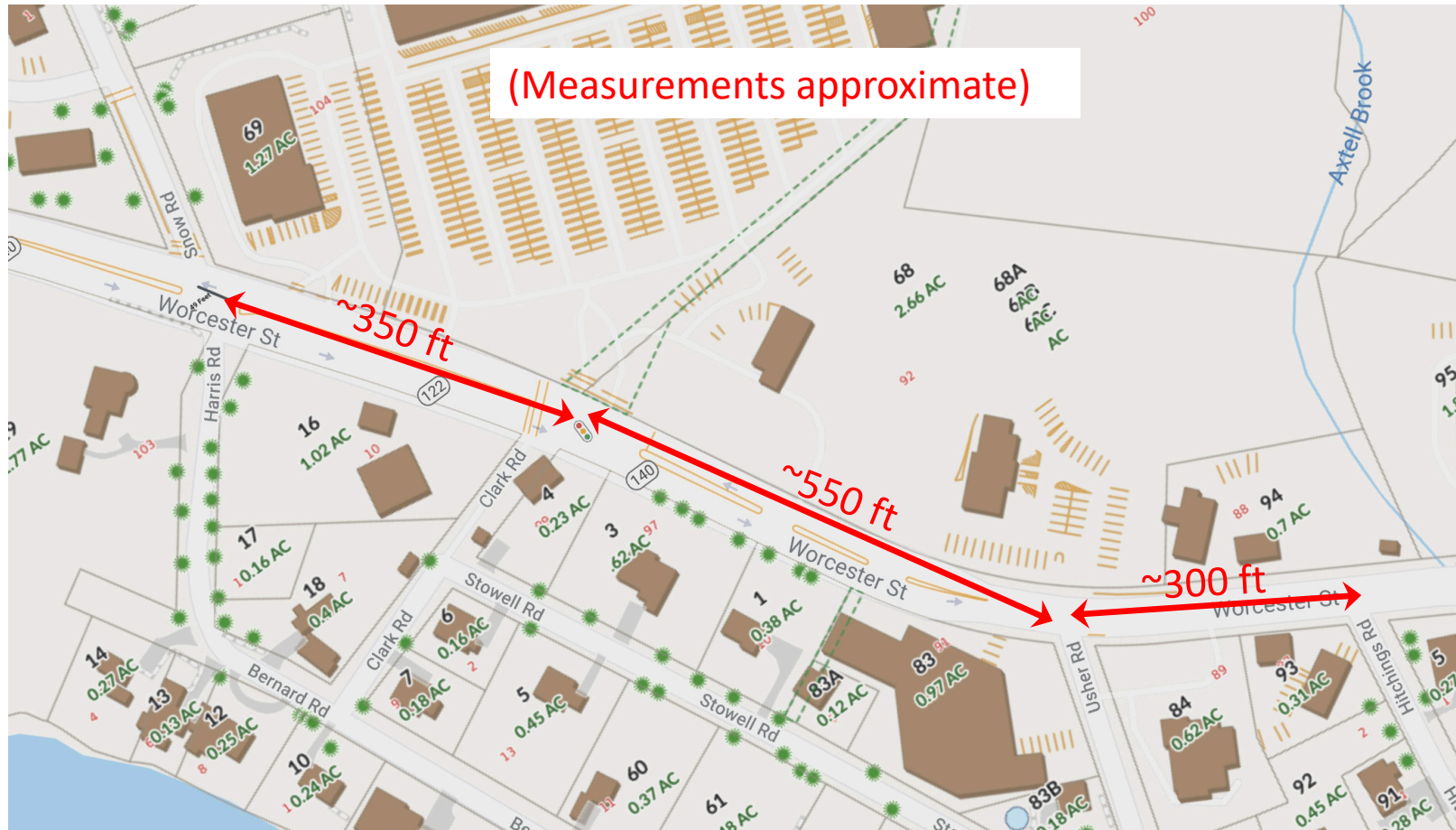
Major Street Intersection Separation Example: Milford Rd, 600' separation



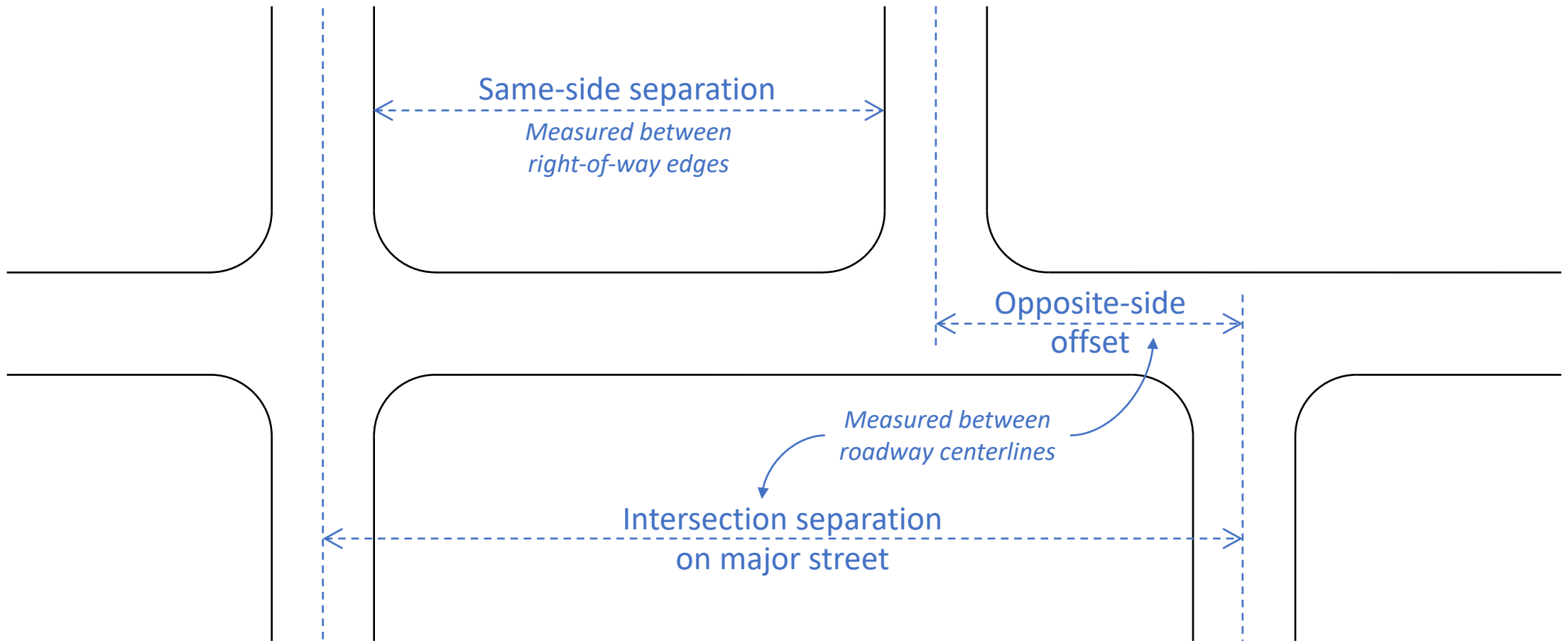
Major Street Intersection Separation Example: Pleasant St, 500' separation



Major Street Intersection Separation Example: Worcester St, 300' separation



Intersection Separation Measurements



Intersection Separation: Proposed Rules

- 4.1.3.6 Streets entering opposite sides of another street shall be directly opposite one another or shall have an **opposite-side offset** of at least **150** feet between their centerlines. Streets entering the same side of another street shall have a minimum **same-side separation** between their rights of way of twice the minimum frontage for the applicable zoning district or **250** feet, whichever is greater. **Notwithstanding the foregoing, intersections on a Major Street shall be separated by a minimum of 500 feet between their centerlines. In cases where constraints imposed by existing development or property lines, topography, wetlands, or other unusual site conditions make it infeasible to satisfy the minimum separation between two streets and no feasible alternative designs are possible, the Planning Board may waive the minimum separation requirement, provided that the centerlines of the two streets are separated by at least the minimum opposite-side offset and that the Planning Board finds that the reduced separation will not have an adverse impact on traffic safety or on the land between the two streets. In special instances the Planning Board may approve a right-of-way for a future street to remain in fee ownership of the applicant, in lieu of actual construction of a cross street.**